

What is claimed is:

Sub a) 1 A data packet multi-access communicating method comprising steps of:

transmitting a data size and a utilization demand of
5 a maximum rate to a base station in case of transmitting
continuous data in large quantities in mobile station side
and

10 variably changing a transmission rate according to
the maximum rate indicated by said base station in said
mobile station side.

2 A data packet multi-access communicating method comprising steps of:

receiving a transmission demand from each mobile
station in base station side,

15 determining a maximum rate for each mobile station
at that time by taking account of radio wave propagation
condition under which said each mobile station is
presently situated, data size and a priority order in base
station side and

20 notifying said each mobile station of said maximum
rate in base station side.

3 A data packet multi-access communicating method comprising steps of:

transmitting a data size and a utilization demand of
25 a maximum rate to a base station in case of transmitting

continuous data in large quantities in mobile station side,
receiving said data size and said utilization demand
from each mobile station in base station side,

5 determining a maximum rate for said each mobile
station at that time by taking account of radio wave
propagation condition under which said each mobile station
is presently situated, said data size and a priority order
in base station side,

10 notifying said each mobile station of said maximum
rate in base station side and

variably changing a transmission rate according to
said maximum rate indicated by said base station in said
mobile station side.

15 4 A transmitting apparatus on a mobile station side
comprising:

variable rate communication path coding means for
coding an information signal at a transmission rate in
accordance with an information content,

20 modulation means for modulating a signal at
transmission power in accordance with said transmission
rate and

25 maximum rate controlling means for controlling a
maximum value of the transmission rate to said variable
rate communication path coding means, in accordance with
maximum rate information determined by taking account of

transmission condition and a transmission rate of each channel.

5 A receiving and transmitting apparatus on a base station side comprising:

5 transmission condition detecting means for monitoring transmission condition of a plurality of channels and determining quality of the transmission condition of each channel.

10 transmission rate detecting means for detecting a transmission rate demanded by each channel,

15 a maximum rate control information determining means for determining a maximum value of the transmission rate of each channel by taking account of results of said transmission condition detecting means and transmission rate detecting means, and an indication from an operation of other user and

20 notifying each channel of a determination result of the maximum rate.

6 A receiving and transmitting apparatus on a mobile station side comprising:

25 a voice coding device for coding voice;

a data packeting device for packeting a data signal sequence to a unit of radio signal transmission;

25 a variable rate communication path coding device for conducting error correction coding of a coded voice data

CONTINUATION SHEET

and a packeted data in said voice coding device and data packeting device, and an addition of the redundancy bit and matching processing of the transmission rate, and for conducting framing and slotting of a radio signal transmission unit of these both data, and communication path coding processing;

5 a voice/data packet switching device, arranged between said voice coding device and data packeting device, and the variable rate communication path coding device, for selecting any of the voice data and the packeted data, and inputting it to the variable rate communication path 10 coding device;

15 a continuous data content demand indicating device for obtaining continuous data content demand indicating information in order to transmit a continuous data content packeted in said data packeting device to the base station;

20 a maximum rate controlling device for receiving maximum rate control information transmitted from the base station, and supplying a control signal to said voice/data packet switching device and variable rate communication path coding device;

25 a modulation device for digitally modulating a signal communication-path-coded in said variable rate communication path coding device; and

a transmission power controlling device for receiving transmission output power information from said maximum rate controlling device, and controlling transmission power.

5 7 A receiving and transmitting apparatus on a mobile station side comprising:

a demodulation device for digitally demodulating a received signal through a transmitting and receiving antenna and a radio transmitting and receiving device;

10 a variable rate communication path decoding device for conducting communication path decoding processing in accordance with a transmission rate, such as reconstruction and error correction decoding of a frame, and matching of a transmission rate, from a received 15 signal which is output from said demodulation device and is slotted to a radio signal transmission unit;

a maximum rate designation information detecting device for extracting maximum rate designation information from an information header section of each frame of a 20 signal output from said variable rate communication path decoding device;

a maximum rate controlling device for receiving a detection result from said maximum rate designation information detecting device, and outputting a 25 predetermined control signal to a voice/data packet

switching device and a variable rate communication path coding device of a receiving device;

5 an information source isolating device for isolating a signal in accordance with a difference of information sources, to which a voice/data packet and so forth after decoding outputted from said variable rate communication path decoding device is time-multiplexed;

10 a voice decoding device for decoding a voice output of a data block isolated in said information source isolating device; and

15 a continuous data assembling device for reconstructing a packeted reception data to a continuous data.

8 A receiving and transmitting apparatus on a base station side according to claim 5, characterized in that the apparatus is constructed of:

20 a demodulation device for demodulating a signal of a corresponding channel from a received signal received through a transmitting and receiving antenna and a radio transmitting and receiving device, to which a plurality of channels are multiplexed;

25 a variable rate communication path decoding device for conducting communication path decoding processing in accordance with a transmission rate, such as reconstruction and error correction decoding of a frame,

and matching of a transmission rate, from a received signal which is demodulated and is slotted to a radio signal transmission unit in said demodulation device;

5 a transmission condition detecting device for detecting radio wave propagation condition and transmission condition of each communication path, based on an output signal demodulated in said demodulation device;

10 a transmission rate detecting device for detecting a transmission rate of each channel and its error ratio, based on an output signal decoded in said variable rate communication path decoding device; and

15 a maximum rate control information determining device for determining maximum rate control information of each channel, based on an output signal detected by said transmission condition detecting device and transmission rate detecting device.

9 A receiving and transmitting apparatus on a base station side comprising:

20 a variable rate communication path coding device for conducting error correction coding for a signal of each channel, which is output from a maximum rate control information determining device for determining maximum rate control information of each channel, and an addition 25 of the redundancy bit and matching processing of a

transmission rate, and for conducting framing and slotting of a radio signal transmission unit, and insertion of control information such as the maximum rate control information, and for conducting communication path coding processing;

5 a modulation device for modulating an output signal which has been coded in said variable rate communication path coding device; and

10 a multiplexing device for multiplexing a modulated signal of each channel, which has been modulated in said modulation device.